LiDAR ACCURACY REPORT

Project:	Steelville, MO
Delivery Order No.	0001
Contract No.:	W912P9-10-0538
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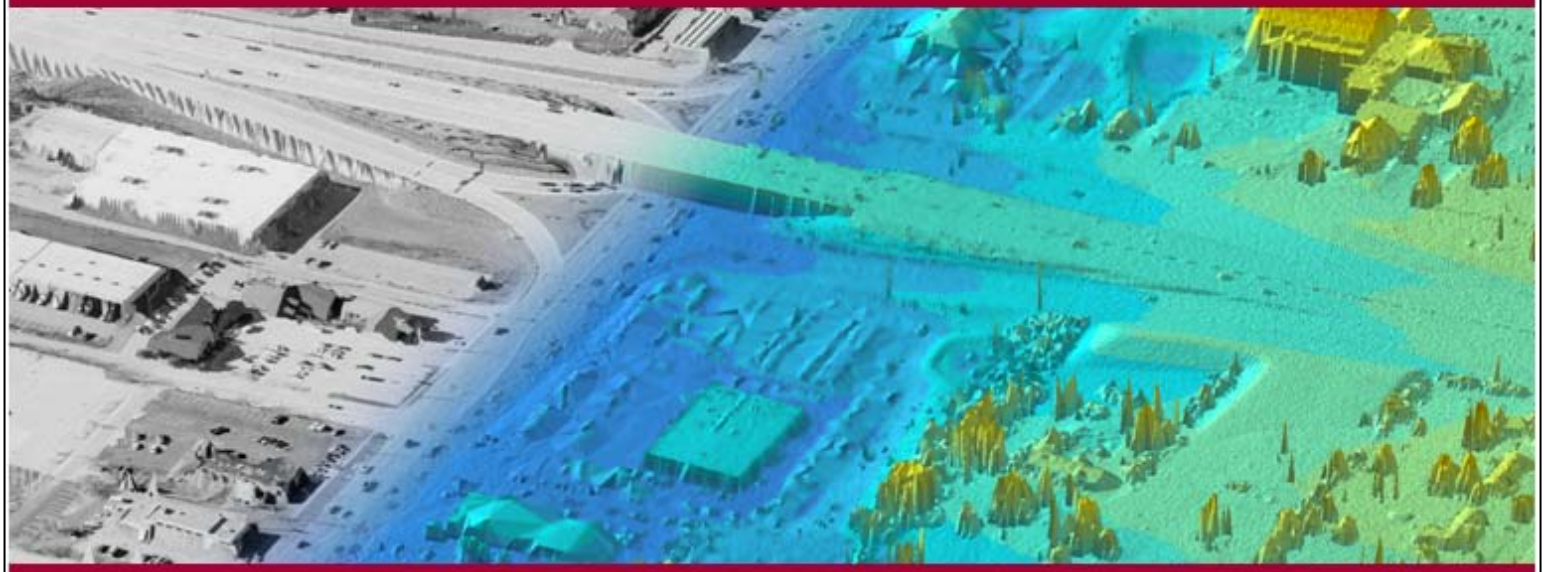
Submitted by:	Wade Williams, Project Manager



US Army Corps of Engineers, St. Louis District

Project Overview

The St. Louis District of the United States Army Corps of Engineers (USACE) contracted with Surdex Corporation in May of 2011 to collect LiDAR elevation data over Dent County in Missouri. The post processed elevation data was to meet USGS Base Lidar "General" Specification, Version 13 & FEMA Procedure Memorandum 61 Guidelines for "High" Specifications. The vertical accuracy of the processed areas will meet 37.1 centimeters RMSE.

Project Area

This report covers the collection and processing of LiDAR elevation data over Steelville, MO. The project limits are presented in the graphics below. The project area consisted of approximately 8 square miles of elevation data.

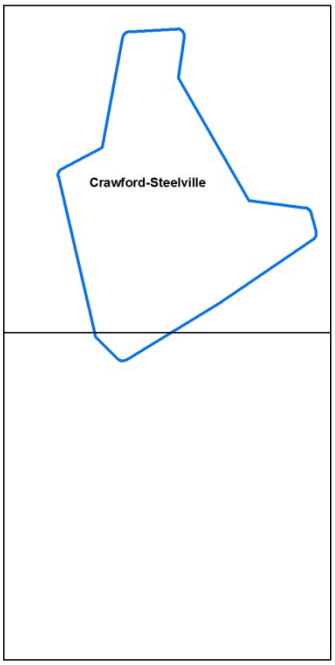


Figure 1 Steelville Project Area

LiDAR Data Collection Scenario

The LiDAR elevation data for this project was collected with a Leica ALS-50II MPIA aerial LiDAR sensor system. The project design called for acquisition of LiDAR data with lines flown north-south. The nominal collection scenario called for the acquisition of nominal point spacing of 2 meters on the ground.

Steelville LiDAR Evaluation

The field survey for this project consisted of a combination of primary control (20) and LiDAR check points (58). The graphic below presents these points on the project area map.

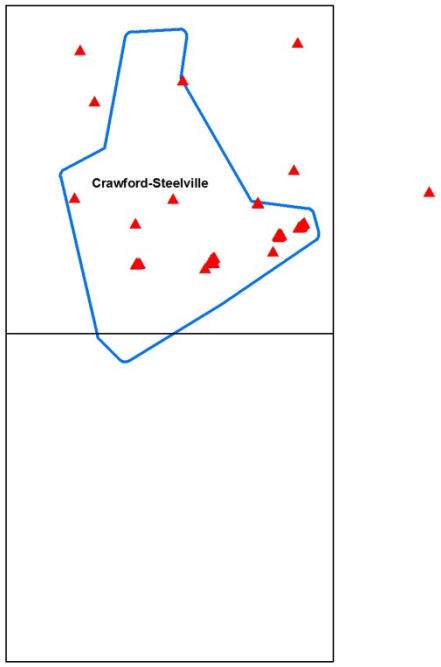


Figure 2 Steelville Control

These points consisted of various types of ground cover including asphalt, gravel, short grass, tall grass and trees. Examples to the types of points surveyed are included below.

The required LiDAR elevation data values were derived within ArcGIS from the bare earth .las files. For each control point location a LiDAR elevation value was derived and exported and the surface value subtracted from the survey elevation. These derived values were imported into Excel and comparisons were performed to generate statistics by ground cover type and for the overall dataset.

Results

The table below presents the results of the accuracy analysis for Steelville, MO. All values are in feet.

Stat	Primary Control	Hard Surface	Grass	Trees	Overall
Count	20	22	21	15	78
Average	0.162	-0.064	-0.244	-0.275	-0.095
RMSE	0.607	0.148	0.269	0.358	0.380
95% Confidence Level	1.189	0.290	0.527	0.702	0.745

As indicated above the LiDAR surface meets project specifications of RMSE less than or equal to 37.1 cm, with an overall RMSE of 11.5 cm.